

Comparing the
Sustainability
of Porcelain Plates and
Compostable
Alternatives

A White Paper on Dinnerware's Hidden Environmental Impact



Porcelain vs. VerTerra Compostables

What every hospitality owner must consider when purchasing dinnerware.

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Executive Summary

The COVID-19 pandemic created an entirely new landscape for the hospitality industry. From supply shortages to limited staff, these challenges — though difficult — set the stage for creativity, innovation, and a better way forward. Take, for example, how staff shortages prompted restaurants to seek new ways to adapt. The unexpected solution? Plating choices.

Our research suggests that a decision as simple as your dinnerware can have a tremendous impact on your bottom line, as well as the environment. Here, we will explore the ways in which hospitality businesses — such as restaurants, event firms, catering companies, and more — can grow in the post-pandemic world by making the switch to an eco-friendly replacement option such as what **VerTerra** Dinnerware offers.



Key Takeaways:

- In the foodservice & hospitality industry, the replacement rate for ceramic is **30-50%** every year due to breakage. That means you're replacing your dinnerware every six to nine months.
- "Reusables" (e.g. porcelain, melamine) aren't as environmentally friendly as many assume due to factors like sourcing, manufacturing, transportation, storage, and maintenance.
- When switching from ceramic, know that not all compostables are equal. **VerTerra** has always been the exceptional choice, outperforming other bamboo and palm products with regards to quality, safety, presentation, functionality, and customer satisfaction.
- Minimize the negative impact of staff shortages by switching from ceramic to VerTerra dinnerware. Disposables require half the staff of ceramic.



Introduction

As the restaurants and venues who survived the shutdown began the reopening process in 2021, the labor shortage and the drive to simply survive prompted establishments to begin using increased amounts of disposables, porcelain plates were a thing of the past at the moment, as dining in was still a very rare menu item. What they found was a 40%+ deficit in staff availability, a spike in overall operational costs including rent, and food costs were on the rise - steadily increasing as the supply chain continued to buckle under the stress of the 2020 COVID-19 shutdown. Some large venues were so understaffed, they resorted to sending dirty dishes to an off-site cleaning facility.

Where did that leave the culinary and hospitality industries? High and dry and desperate. The need for a solution was eminent and oddly enough, one that already existed but very few knew about.



The Problem: Businesses Want Sustainable and Cost Effective Solutions

Right now, more and more companies are prioritizing social responsibility. Corporate social responsibility, or CSR, describes a business's commitment to people and the planet.

In one study by Aflac, 77% of consumers said they're motivated to buy from companies that are committed to making the world a better place. What's more, 73% of investors said that efforts to improve society and the environment contribute to a return on investment. Plastic is no longer a good look, and using too much plastic or styrofoam single use dinnerware can even be enough to drive away eco-conscious customers.

Sustainable practices aren't just good for the environment — they're smart for your business, too. The dilemma, of course, is that the right decision isn't always immediately obvious. That's especially true when it comes to commercial dinnerware.

Business leaders must learn to question myths, such as:



"All disposables are bad for the environment."



"Compostable products are expensive."



"It's better to 'own' our own plates."

For a long time, ceramic has been the default choice for many establishments in the food service industry. It's often touted as the more sustainable and economical option when compared with single-use alternatives like plastic and styrofoam.

But what if reusable doesn't always mean sustainable? What if disposable doesn't always mean wasteful?

When you follow the life cycle of ceramic products, from raw material sourcing to transportation, you'll quickly realize that the environmental impact is higher than you might've thought. Taking into account (1) the environmental toll of clay mining, (2) the amount of labor and water required to keep ceramics clean and reusable, as well as (3) the carbon footprint of production including the transportation used for the import process quickly paints a picture that is less than environmentally friendly than originally thought.







Labor and Water



Carbon Footprint

There is a heavy labor requirement in reusable dinnerware and silverware upkeep, which is why many businesses with smaller waitstaff and kitchen staff use cost-effective single-use plastic alternatives. Sustainability does not have to come at a high cost when it comes to dinnerware. Compostable solutions — are better for the environment and help businesses save money.

A ceramic plate's reusability isn't enough to make it a more sustainable choice. A conscious buyer and a conscious consumer want a product that's also been sustainably sourced and manufactured with the environment in mind.

Why Reusable Isn't Always Sustainable

The food and beverage industry is in the spotlight for how much food waste it produces, prompting establishments to get serious about sustainability initiatives. In individual households, an easy way to increase sustainability is to move away from single-use items. For food businesses that serve thousands of guests a week, however, that's not always the case.

While many businesses may think using ceramic and melamine dinnerware is a more sustainable alternative to single-use, they are actually leaving a larger carbon footprint than intended.

Although clay is a naturally found material (unlike plastic), the raw material is actively extracted in order to create ceramic dinnerware. Research shows that the process of clay extraction (i.e. mining) can be detrimental to the environment. Water contamination, biodiversity loss, soil erosion — are only a few of the consequences that arise from mining clay. Clay is a limited resource on our earth, and an essential one to the preservation of ecosystems.

Manufacturing ceramics is also a resource-intensive process. The production of ceramic requires **35** times the amount of water and **54** times the amount of energy than disposables.

$$=35x +54 4$$

Then, there's transportation by sea freight. The carbon footprint of a single plate traveling from Asia to Los Angeles is **101** grams. Compare that to **5.1** grams — the carbon footprint of a disposable. The carbon footprint of ceramic is **20** times higher. This is exacerbated by the fact that ceramic plates have an expected **5%** breakage rate on arrival.

The resources needed to maintain ceramic dinnerware for further use makes it a less than ideal choice for sustainability. Industrial dishwashers that clean ceramic dinnerware demand a large amount of water. A recent U.N. report indicated that droughts have risen by almost a third in number and duration since 2000. Water usage should therefore be a concern to any business considering sustainability practices.

Disposable dinnerware that's designed with sustainability in mind are created from discarded material, and therefore don't require extracting raw materials like wood. These eco-friendly options don't require water to clean, and are more lightweight than ceramic, therefore reducing the carbon footprint needed to transport.



Sea freight transportation carbon footprint



Industrial Dishwashers demand a large amount of water



Eco-Friendly
Disposable
dinnerware

The Hidden Costs of Ceramic

Dinnerware is an essential expense. What isn't essential, however, is the price of storing and maintaining ceramic dinnerware.

When choosing between ceramic and compostable, consider the upfront price tag — but don't stop there. Storage and maintenance costs can reveal which dinnerware is the right choice for your business.

Let's start with storage. Within the same square footage, you can either store **25** porcelain plates or **300** VerTerra plates. Of course, an establishment will need to purchase more compostables than they would porcelain, so let's take a moment to factor that in.

A 100-seat restaurant typically maintains 300-500 porcelain plates per size, which requires 14 to 18 square feet of floor space. For a restaurant of the same size, we recommend a minimum purchase of 12k compostable plates every month (or 3k weekly), which only requires 2 square feet of floor space. Put another way, the same two industrial shelving units (such as Metro) that hold 500-600 ceramic plates (a mixture of 6-inch and 9-inch plates) can instead hold 9,600 VerTerra plates (also a mixture of 6-inch and 9-inch plates).





Now, let's navigate maintenance costs. It's no secret that porcelain is expensive to maintain, but the details might surprise you. The purchase of porcelain is often the third-highest capital expense after kitchen and front-of-house buildout. Maintaining porcelain dinnerware involves the following costs and expenses:

Staff: You need staff to pick up plates after use, scrape off excess food, pre-wash plates, load/unload the dishwasher, and then restack the plates.

Space: You need to allocate valuable real estate for the storage of the plates and dishwasher.

Time: Of course, the above takes time. We must also factor in the necessary cooling time for porcelain dishes.

Water: For cleaning.

Electricity: For heating water and running dishwashing unit(s).

Chemicals: Cleaning supplies used for washing and sanitizing dishes.

Machinery: Includes time and money spent on repairs and regular maintenance.

Human resources (HR): Because porcelain dishes require more staff, the HR burden is inherently higher — as is the stress on staff.



That's how much you can be saving by switching from porcelain to **VerTerra** dinnerware.





100 seats of 25 four-tops needs



25 minutes of additional labor.



At \$18/hour, 25 minutes costs \$7.50



\$187.50 per shift with two lunch and two dinner seatings.



\$750 a day for 6 days a week, adjusted for holidays



308 working days = \$231,000 dollars saved.

Storage and Maintenance Costs More Than You Think

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You need to buy bins for clearing away dirty plates. Each bin costs about \$20-\$30. You also need 4 square-feet of floor space for every 200-300 plates and industrial-sized wire shelving.

Dish Washing Unit

\$15,000 to \$100,000. You can expect to pay \$500 a year in maintenance and servicing and \$250 for replacement hoses and pumps. Let's not forget about the service fee for the electrician and plumbing installation.

Staff

3-4x the amount of staff. For every **20** people, you need a supervisor. For every five supervisors, you need a manager.

Electrical & Water Usage

For the dish washing unit.

Pre-Rinse Solution

Costs \$40 for a 5-gallon tub. That's \$0.30 per 12 plates.

Tub Wash Liquid

Costs \$65 for a 6-gallon tub. That's \$0.45 per 12 plates.



Composting to Create Better Food and Save Money

Compostability is essential to a sustainable dinnerware option. A compostable material can safely decompose to create nutrient-rich soil additives.

For many restaurants, the logistics of composting disposables gives them pause, but did you know that composting can actually save you money? Food businesses already create one kind of waste that can be composted — food. Instead of paying for your food waste to sit in a landfill, consider composting food waste and disposables together. Most regions have commercial composting programs that can handle the logistics of hauling away your compost. Composting your dinnerware and food together means that you only have to deal with one major waste management system.

Compost allows farmers to grow more food using less water.

Restaurants across America are strengthening their relationship to local farmers by providing compost in exchange for reduced rates on locally-sourced produce. Other restaurants are investing in growing their own produce, and setting up compost systems to make the process that much more effective.

The price of vegetables have jumped 80% in the past year alone because of drought and supply chain disruptions. Given this jump in price, it may be more cost effective for food businesses to look to local farms in sourcing ingredients. Composting allows restaurants to either create their own food for less, or inject into the local supply chain much needed resources that can in turn lower their own ingredient costs.

Composting is a great step for food businesses that take sustainability seriously and want to reduce their reliance on an unstable global food supply chain.





Introducing VerTerra

VerTerra is the originator and leader in palm leaf plates that are compostable and stylish. All products are made from fallen palm leaves, leftover tree stumps, and rice paper. They're also BPIcertified compostable.

Sourcing: VerTerra products are designed from sugarcane and fallen palm leaves, agricultural waste products that would otherwise be discarded or burned. No trees are ever harvested.

Manufacturing: Producing VerTerra requires less water and energy than producing ceramic.

Transportation: The carbon footprint is **20** times less than transporting ceramic by sea freight.

Because VerTerra is BPI-certified compostable, they've undergone rigorous independent testing to ensure complete breakdown in a compost facility. In two months, VerTerra products will return to the earth and contribute to a healthier soil environment.

VerTerra products are durable, lightweight, and look great. For any business looking to integrate more socially responsible practices, VerTerra dinnerware is the best choice.

VerTerra can help your business by:

- Reducing the number of staff you need
- Reducing water and electrical usage
- Reducing need for cleaning chemicals
- Reduced maintenance costs
- Reduced HR burden
- Saving you space on storage

Top Use Cases for VerTerra Compostable Dinnerware

Compostable dinnerware is a sustainable and economical solution for high volume settings like catering, food trucks, and fast-casual restaurants or corporate cafeterias.

Catering

Current dinnerware options are a point of friction for caterers, because they serve food in a different location from where they cook the food. On one hand, single-use dinnerware is a simple and portable solution, but on the other hand, clients demand more sophistication than plastic or paper plates.

This usually involves collaborating with party rental companies to provide ceramic dinnerware, to varying degrees of success. Caterers often have no choice in what rental company to use, and the delivery and cleaning of dinnerware involves a lot of time-wasting coordination.

Some caterers choose to stock their own basic ceramic dinnerware. While this cuts out the complication of third-party providers, it can be cost prohibitive. Ceramic plates break more often in catering settings, because of the distances they travel. In addition, the burden is then on the caterer to wash all of the plates.

VerTerra is a stylish option that looks as elegant as ceramics for any event. **VerTerra** products are easily compostable along with any food waste, eliminating the need to carry and wash heavy ceramic dinnerware. Because **VerTerra** products are not fragile, they can be stacked on top of each other, requiring minimal storage space.

VerTerra offers a range of palm leaf plates and compostable cutlery for dining, as well as a variety of single-use compostable serving trays and boxes for food service.

Food Trucks

Food trucks and carts go through thousands of single-use serving dishes a week. Every aspect of a food truck — even the type of single use dinnerware used — contributes to the truck's brand. And in a competitive space, food trucks with a strong brand are poised to succeed.

Food truck businesses need dinnerware that's durable, looks good, and doesn't eat away at their bottom line.

VerTerra compostable dinnerware offers a stylish option for dinnerware with a clean aesthetic that adds to any food truck brand. With an increasing amount of reviews mentioning sustainability as a factor in continued patronage, food truck brands can't afford to not take sustainability seriously.

Fast-Casual and Corporate Cafeterias

Fast-casual restaurants and corporate cafeterias are two settings that see a high volume of customers. These food businesses need to crank out large volumes of food as efficiently as possible.

Reusable dinnerware cuts into efficiency by necessitating extra staff to pick up dinnerware (after customers self-bus the table), and clean. Single-use dinnerware is an excellent solution that cuts down on staff.

So why not use plastic? Consumers are demanding more corporate responsibility transparency. Serving food with sustainable, compostable dinnerware is a highly visible way to signal to consumers that you are committed to sustainability.

VerTerra products are durable, easy to store, and allow businesses to compost dinnerware alongside foodware. These compostable products are an easy way for fast-casual restaurants and corporations to commit to sustainability.





FAQ

- What if I send dirty dishes to a batch cleaning facility? Will that be more efficient and less expensive?
- What would normally be a food service cost becomes a facilities management cost. Plus, this will multiply the amount of ceramic you need to buy by five times, since you will need to rotate clean and dirty dishes. Or, you may utilize the vendor's supply program, which further adds to the cost.
- What about plastic disposables?
- A: Compostable disposables can go to a compost facility with food on them. Plastic disposables cannot be recycled with food on them.
- Aren't compostable products really expensive?
- A: Certified compostable products come with a high price tag, and you also have to pay someone to haul them away after use. However, you start to save money with reusables anywhere from the 6-month mark and onwards.

Bottom Line

Porcelain and melamine plates can be economically and environmentally responsible in certain settings where distances are short and level of care is high, such as: small venues, wellstaffed restaurants, waiter-intensive executive dining, and homes. But in high-volume settings (e.g. fast-casual restaurants, corporate cafeterias, stadiums, convention centers, etc.), the cost of porcelain and melamine is untenable. For business owners and operators, it's time to vet conventional wisdom and equip themselves with the knowledge of the true costs of equipment, installation, staff, HR, water, electrical, and cleaning supplies.

Making the switch to **VerTerra** can alleviate the costs associated with your initial purchase, storage, and maintenance.

What's more, customers remain impressed by the presentation and functionality of VerTerra products, especially compared to other disposable products. With the emergence of the environmentally conscious consumer, opting for an equally sustainable brand can also reaffirm your company's position in the marketplace.





Uncovering Hidden Costs

Purchasing Ceramic & Replacing Inevitable Breakage

500 6-inch plates at \$6 /piece	\$3,000
500 9-inch plates at \$12/piece	\$6,000
Replacing 40% breakage	\$3,600
Total Purchase Cost	\$12,600

Labor Costs Associated with Ceramic

Hourly pay for busser	\$18/hour		
3 bussers at any given time			
Open 15 hours a day, 365 days a year			
Total	\$295,000 a year		

Labor Costs Associated with Disposables

Hourly pay for busser	\$18 /hour		
1 busser at any given time			
Open 15 hours a day, 365 days a year			
Total Purchase Cost	\$12,600		

Labor Costs Comparison

Ceramic Disposables \$295,000 a year \$98,500 a year

Disposables could save you \$197,000 a year in labor.

Even if you never broke or replaced a plate, you're still better off using disposables. (That's not even counting soap, storage, and other costs.)

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